ANORECTAL TRANSPLANTATION.

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COMPLETE paralysis of the sphincter ani uncomplicated with other lesion, either general or local, is a rare affection. It is a common symptom in paraplegia, in general paralysis, in acute diseases, inflammatory or febrile, where the patient is in a typhoid state, in laceration of the pelvic floor in childbirth, etc. In many of the acute cases the sphincteric action is regained with the patient's restoration to health, or as the result of surgical interference. The results of medical or surgical treatment in chronic cases is, with rare exceptions, so unsatisfactory that the patients are dependent on some of the various forms of mechanical appliance for any relief they may obtain. The operation resorted to in the following case of paralysis of the sphincter uncomplicated with other lesion is, as far as I know, novel; the history, however, is presented not on account of its novelty, but its benefit to the patient.

P. C., male, aged thirty-nine years, butcher, entered St. Peter's Hospital, October 17, 1900. Five months previous to his entrance, while bending over his work, an ungrateful steer, for which he was preparing food, ran one of his horns into the patient's rectum, inflicting a lacerated wound through the sphincter and both forward and backward into the perineum. This, I gather, from the patient's description of the injury and from subsequent examinations in the hospital, was what took place originally. The loss of blood was sufficient to weaken him, although he continued his journey on a cattle train, and reached

Chicago some hours after he was injured. He states that two operations were performed for his relief in Chicago, two subsequently in Boston, and two in New York, from only one of which he experienced any relief. The operation, performed in New York, and which he states consisted in "twisting the lower part of the rectum and stitching it fast in its twisted position," gave him some relief, excepting when he was suffering from attacks of diarrhœa. At the time I first saw him he was thin, pale, slept badly, and was generally a nervous wreck. He was suffering from no organic disease, but used alcohol to excess. His physical and nervous condition was, he states, entirely due to the injury to his rectum. He was in a filthy condition due to the frequent fæcal discharges. Examination showed short but firm scars, extending one forward and one backward and to the left from the sphincter, which manifested no contractile power whatever on the finger inserted into the rectum. Nor could the patient by any voluntary effort cause it to contract to the slightest degree. With such a history, and after failure to secure any material relief by skilfully performed operations, and suffering in body and mind from disease that was incurable as far as furnishing the patient with a new sphincter ani muscle was concerned, I was at a loss to know what to do that would benefit him and restore him to a condition that might enable him at least to earn his living with some degree of comfort. Inguinal colostomy or what may properly be described as anorectal transplantation were the only two things that suggested themselves to my mind as offering any material relief. While inguinal colostomy as at present performed is a comparatively safe operation, and the patient on whom it has been done is not in many cases an offensive companion, it involves the wearing and care of some form of mechanical obturator, and in this case, when my object was to restore him to active work, I doubted whether he could or would give the necessary attention to the apparatus to make it efficient, especially as he had objected to wearing any apparatus up to the time I saw him. I therefore resorted to the anorectal transplantation after fully explaining the operation and its experimental character, and getting his consent to its performance. After the usual preparations for a rectal operation, and with the patient under ether and on his side, an incision was made extending from about a quarter of an inch outside the anus following the natal cleft to

the sacrococcygeal articulation. The coccyx was removed, and the rectum, including its middle and lower third, freed from the surrounding soft parts posteriorly and laterally, and the hæmorrhage checked by torsion. The patient was then put in the lithotomy position, and with an assistant holding a sound in the urethra the anterior portion of the rectum was separated by means of scissors. In my anxiety to avoid opening the urethra, I accidentally opened the rectum about an inch above the anus. After freeing the anterior surface well up to Douglas's cul-de-sac, I sutured the small opening I had made into the rectum with two catgut sutures, and by means of fine black silk sutures anchored the anal end of the rectum in the upper angle of the wound in the skin just below the sacrum. The wound below the upturned rectum was then stitched after irrigation, and dressings applied and the patient put to bed.

The risks of such an operation as the one described above are not great, and many of them are the same as we encounter in excision of the lower two-thirds of the rectum for malignant disease. One must bear in mind the relation of the ureters and seminal vesicles to the rectum, the possibility of opening the peritoneal cavity, and secondary infection from septic disease in the perineum. The hæmorrhage in such a wide open wound is easily controlled by ligation or, still better, by torsion. There were in the case reported two things about which I felt some uncertainty and anxiety; first, the effect on the blood supply of the rectum from cutting off so much of its blood supply by the free dissection that was necessary, and from the very acute angle that was made in the posterior wall by folding it back on itself in order to place the anus in the upper angle of the wound; and, second, what effect traction on the bladder by the anterior wall might have in producing irritation of the bladder. Fortunately, any anxiety that was felt immediately after the operation soon proved groundless, for the mucous membrane kept its color, there was no gangrene or ulceration at that point, and there was not the slightest bladder irritation.

What was accomplished, then, was an anorectal trans-

plantation, quite unlike an artificial anus, in the same location where the rectum has been partially excised, and where the contents of the bowel make their way out straight through the upper part of the rectum. In this patient there was a rectal pouch, the bottom of which was about three inches below the transplanted anus, and the posterior wall of the rectum was folded back on itself and formed a thick valve just inside the anus. Fæces must therefore reach the bottom of this pouch, and by reverse motion travel back about three inches, with no peristalsis in the transplanted rectum to aid the motion (for this portion of the rectum was already paralyzed), and finally pass this valve, made by the posterior wall of the rectum, before it could be evacuated. In addition to this, the presence of fæcal matter, which in a healthy rectum produces a desire for its expulsion, produced no such desire in this case, for the rectal sensitiveness had been almost abolished by the original injury.

The patient complained a good deal of pain for three or four days following the operation, and there was infection of the perineal portion of the wound and suppuration for several weeks. There was at no time a fæcal fistula from the accidental wound in the rectum. From the time of the operation the patient began to experience the benefit that I had hoped for. He had several discharges from the bowels in the morning, but during the rest of the day and sometimes during the night no discharge occurred; and at the time he left the hospital, January 10, 1900, he had, as a rule, two evacuations in the early morning and none after that until the following morning. He was in the hospital fourteen weeks.

About two months after he left the hospital I saw and examined him. He had gained flesh, strength, and color and slept and ate well. The anal orifice was a vertical slit; the valve formed by the posterior wall of the rectum was still present and had not atrophied; there was no bladder irritation, and from digital examination I felt there would be none, for the pouch at the bottom of the rectal curve, instead of diminishing, had grown perceptibly larger. The bowels were

acting once or twice in the morning, and during the rest of the day he was comfortable. He said he was able and ready to resume work, and expressed himself well satisfied with the result of the operation. I think myself that I had gained all that might be reasonably expected from the operation. What the ultimate result is to be is, of course, uncertain. I feel now quite sure that the anus will not be displaced, and that the rectal pouch will not be obliterated by contraction. I should have more fear that it might become abnormally dilated. What will become of the rectal valve, I will not venture to predict.

It may be that in cases where paralysis of the sphincter ani is due to other than local causes, and when the patient is in condition to stand the operation, benefit might be derived from an anorectal transplantation. It would hardly be thought of in patients confined to bed; but it offers some chance of relief from a distressing symptom in those that are able to be up and about.

In a subsequent operation I should try to avoid opening the rectum, and should certainly leave the lower angle of the wound open for irrigation and drainage.